

**(19) World Intellectual Property
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International Bureau**



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(43) International Publication Date
7 October 2004 (07.10.2004)

PCT

(10) International Publication Number
WO 2004/084838 A2

- (51) **International Patent Classification:** **A61K**

(21) **International Application Number:** **PCT/US2004/008960**

(22) **International Filing Date:** **24 March 2004 (24.03.2004)**

(25) **Filing Language:** **English**

(26) **Publication Language:** **English**

(30) **Priority Data:**
 60/457,006 24 March 2003 (24.03.2003) US
 60/480,083 20 June 2003 (20.06.2003) US

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(81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VZ, VN, YU, ZA, ZM, ZW.

(84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, CG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MK, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
 — without international search report and to be republished upon receipt of that report

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— without international search report and to be republished upon receipt of that report

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(54) Title: IDENTIFICATION, QUANTIFICATION, AND CHARACTERIZATION OF T CELLS AND T CELL ANTIGENS

(57) **Abstract:** Methods of quantifying and/or characterizing antigen-specific T cell populations, identifying T cell antigens and epitopes, and preparing targeted pharmaceutical compositions by (i) introducing a peptide into an antigen-presenting cell (APC) expressing a fusion protein comprising a major histocompatibility complex portion and a reporter peptide portion such that a complex forms between the fusion protein and the peptide and the peptide is displayed by the APC and (ii) contacting the APC with a population of cells, such that T cells in the population of cells that react with the peptide detectably internalize the complex; novel APCs useful in such methods; and related therapeutic and diagnostic methods.

WO 2004/084838 A2